

Claims:

1. A digital camera configured to obtain an image of a document, said camera comprising:

5 a first light source for illuminating said document in a first image capture operation of said camera;

a second light source for illuminating said document in a second image capture operation of said camera;

10 an imaging detector for capturing an image of said document from said first and second image capture operations, said imaging detector being arranged in first and second portions;

15 a controller for controlling said imaging detector, said controller being configured to collect an image of a first portion of said illuminated document during said first image capture operation thereby providing first image data, and to collect an image of a second portion of said illuminated document during said second image capture operation thereby providing second image data;

20 a memory for storing said first and second image data; and

a processor for processing said first and second image data so as to obtain a final image data of said document produced from said first and second image data.

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2. A digital camera as claimed in claim 1, wherein the light sources and the imaging detector are adapted such that the first portion does not contain a reflected image of the first light source and the second portion does not contain a reflected image of the second light source.

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3. A digital camera as claimed in claim 1, wherein said first portion of said imaging detector and said second portion of said imaging detector constitute part of an integrated image sensing unit, said unit further comprising a first
5 portion of said memory and a second portion of said memory.

4. A digital camera as claimed in claim 1, wherein said first portion of said imaging detector is coupled to a portion of said memory specifically allocated to said first imaging detector portion.
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5. A digital camera as claimed in claim 1, wherein said camera is configured to capture substantially half of said document image in said first image capture operation and capture substantially half of said document image in said second image capture operation.
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6. A digital camera as claimed in claim 1, comprising at least one lens wherein illumination from said illuminated document passes through at least one lens prior to being received by said imaging detector.

20 7. A digital camera as claimed in claim 6, wherein said imaging detector is positioned substantially above said at least one lens.

8. A digital camera as claimed in claim 1, wherein:
said imaging detector comprises an array of light sensitive elements
25 arranged for exposure to illumination from said documents;

said controller comprises an array of gates, for gating charge collected by said array of light sensitive elements; and

said memory comprises an array of charge storage elements arranged to receive a plurality of charges from said array of light sensitive elements, via said gates.

5 9. A digital camera as claimed in claim 8, wherein:

said imaging detector comprises:

an array of individual image sensing elements;

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said controller comprises an array of individual control elements; and

said memory comprises an array of individual storage elements, wherein

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each said image sensing element has a corresponding respective said control element and a corresponding respective said storage element, the arrangement being that each said image sensing element accumulates charge in response to illumination, and said charge is controlled by said corresponding respective control element to be supplied to said corresponding respective storage element, or to be discharged from said image sensing element other than to said storage element.

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10. A digital camera as claimed in claim 1, wherein said portions of said imaging detector are configurable for use independently.

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11. A digital camera as claimed in claim 1, wherein said controller is substantially integrated with said imaging detector, said memory, and said first and second light sources.

12. A digital camera as claimed in claim 1, comprising a camera stand for enabling said camera to be maintained in a fixed position above said document.

5 13. A digital camera as claimed in claim 1, wherein said controller is configurable for use in producing a predetermined delay between said first image capture operation and said second image capture operation.

10 14. A digital camera as claimed in claim 1, wherein said controller is configurable for use in producing a said first illumination of said document and a said second illumination of said document consecutively, one after the other.

15 15. A digital camera as claimed in claim 1, wherein said imaging detector is integrated directly to a storage unit or memory bank of the camera.

20 16. A digital camera as claimed in claim 1, wherein said first light source and said second light source are positioned diametrically opposite each other on a circle, and comprising at least one lens positioned at the centre of said circle.

17. A method of obtaining an image of a document using a digital camera, said method comprising the steps of:

25 illuminating the document in a first image capture operation of said camera;

illuminating the document in a second image capture operation of said camera;

using an imaging detector to capture an image of said document from said image capture operations;

5 during said image capture, controlling said imaging detector in accordance with the steps of:

exposing a first portion of said imaging detector to said illuminated document during a first image capture operation to provide first image data;

10 exposing a second portion of said imaging detector to said illuminated document during a second image capture operation to provide second image data;

15 storing said first and second image data; and

processing said first and second image data so as to obtain a final image of said document produced from said first and second image data.

18. A method as claimed in claim 17, wherein in said first image capture operation the first portion does not contain an image of the first light source, and in said second image capture operation the second portion does not contain an image of the second light source.

19. A method as claimed in claim 17, wherein during said step of image capture, controlling said sensing means comprises the steps of:

exposing a first portion and a second portion of the sensing means to said illuminated document during said first image capture operation said first image capture operation thereby resulting in a first image;

exposing said second portion and said third portion of said sensing means to said illuminated document during said second image capture operation said second image capture operation thereby resulting in a second image, said first and second image capture operations resulting in a third image;

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storing said first, second and third images; and

processing said first and second images so as to obtain a final image of said document.

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20. A method as claimed in claim 19 further comprising the steps of:

following said first image capture operation, transferring said first image from said first sensing means to a suitable first memory; and

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following said second image capture operation, transferring said second image from said second sensing means to a suitable second memory; and

processing said first and second images so as to obtain a final image of said document.

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21. A method as claimed in claim 20 further comprising the steps of:

following said first image capture operation, transferring said first image from said first portion of said sensing means to a suitable first storage means;

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following said second image capture operation, transferring said second image from said second portion of said sensing means to a suitable second storage means;

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transferring said third image from said third portion of said sensing means to a suitable third storage means; and

5 processing said first, second and third images so as to obtain a final image of said document.

22. A digital imaging apparatus configured to obtain an image of a document, said imaging apparatus comprising a digital camera and a stand adapted to hold said digital camera in a fixed orientation relative to said document, said digital camera comprising:

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a first light source for illuminating said document in a first image capture operation;

15 an imaging detector for capturing an image of said document from said first image capture operation and a second image capture operation, said imaging detector being arranged in first and second portions;

a controller for controlling said imaging detector, said controller being configured to collect an image of a first portion of said illuminated document during said first image capture operation, said first image capture operation thereby resulting in a first image data, and said control means being configured to collect an image of a second portion of said illuminated document during said second image capture operation, said second image capture operation thereby

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25 resulting in a second image data;

a memory for storing said first and second image data; and

a processor for processing said first and second image data so as to obtain a final image data of said document produced from said first and second image data;

5 said stand comprising:

a second light source for illuminating said document in said second image capture operation,

10 wherein said controller is arranged to activate said first and second light sources for illumination of said first and second imaging detector portions.

23. A digital imaging apparatus as claimed in claim 22, wherein the light sources and the imaging detector are adapted such that the first portion does not
15 contain a reflected image of the first light source and the second portion does not contain a reflected image of the second light source.

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